

Abstract of the Disclosure

An optical filter, including a pair of Bragg grating units optically coupled to respective ports of a circulator, is provided for filtering a selected wavelength band of light from a DWDM input light. Each grating unit includes a respective tunable optical element, which have a reflective element, such as a Bragg grating. Generally, one grating unit filters a selected wavelength band of light and reflects the selected wavelength band to the other grating unit, which reflects a portion of the reflected wavelength band to an output of the optical filter. This double reflection of the selected wavelength band provides an optical filter having an effective filter function that is equal to the product of the individual filter functions of the grating units. To create a desired effective filter function, the gratings may be written to have different filter functions or grating profiles. One or both of the grating units may also be tunable to selectively create, tailor, shape or change the effective filter function of the optical filter in response to a control signal by offsetting the reflection wavelengths of the gratings, having different grating profiles.